THE SECOND

ANNUAL REPORT

OF THE

TRUSTEES OF THE COOPER UNION

FOR THE ADVANCEMENT OF

SCIENCE AND ART.

JANUARY 1, 1861.

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Exchange
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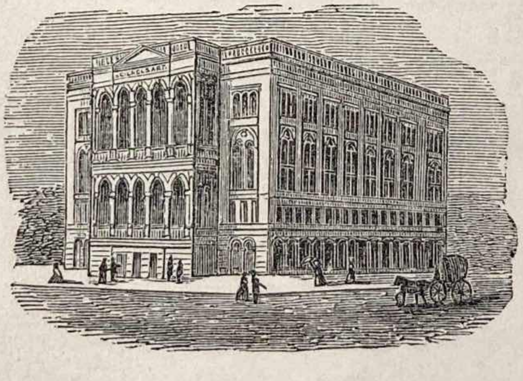

NEW YORK:
J. A. H. HASBROUCK & COMPANY,
PRINTERS AND STATIONERS,
180 BROADWAY.
1861.

Receipts and Expenditures of the Cooper Union for the Advancement of Science and Art, from January 1, 1860, *to January* 1, 1861.

Balance in hands of Wilson G. Hunt, Treas., Jan. 1, 1860,.		$3,425 84

RECEIPTS.

By Rents of Stores, Offices, and Halls,...........	$21,803 95	
" School of Design,........................	563 31	
" Instruction Department (rec'd for books, &c.),..	230 19	
" Gas (repaid),........................	9 48	
" Furniture (sold),..........................	272 50	
" Reading-Room,.......	99 58	
" Fuel,.................................	10 50	
" Advertising,................................	3 27	
" Sundries,..................................	1 69	
" Donation of Peter Cooper,...................	5,109 20	
Total Receipts,................................		$28,103 17
		$31,529 01

EXPENDITURES.

For Office Expenses,..........................	$1,385 41	
" Furnishing Building,.......................	2,418 46	
" Care of Building,...........................	1,273 23	
" Engine Department,........................	942 44	
" Fuel,.......................................	896 00	
" Gas,...	2,608 57	
" School of Design,...........................	2,370 05	
" Picture Gallery,............................	180 50	
" Reading-Room,..............................	2,057 52	
" Instruction Department,.....................	5,571 95	
" Philosophical Apparatus,....................	2,232 30	
" Stationery,.................................	552 52	
" Advertising,................................	148 98	
" Repairs and Improvements,........	7,047 96	
" Postage,....................................	52 50	
" Rents,......................................	33 61	
" Sundry Expenses,...........................	68 60	
" City Assessment,...........................	788 46	
" Library,....................................	171 65	
Total Expenditures,...............		$30,800 71
Balance in hands of Wilson G. Hunt, Treas., Jan. 1, 1861,....		728 30
		$31,529 01

City and County } Peter Cooper, Edward Cooper, Abram S. Hewitt,
of New York, ss. { Daniel F. Tiemann, Wilson G. Hunt, and John E. Parsons, being duly and severally sworn, do, and each for himself doth depose and say, that he is a Trustee of the "Cooper Union for the Advancement of Science and Art," that the foregoing is a true account of all the Receipts and Expenditures of said Trustees from the first day of January in the year 1860, to the first day of January in the year 1861, and that, as deponents are informed and believe, it is a true and correct account of all such receipts and expenditures.

Sworn to before me this 19th day of January, 1861.

E. D. MILLS, Commissioner of Deeds.
(Signed) PETER COOPER.
EDWARD COOPER.
ABRAM S. HEWITT.
DANIEL F. TIEMANN.
WILSON G. HUNT.
JOHN E. PARSONS.

OFFICERS AND TRUSTEES

OF THE

Cooper Union for the Advancement of Science and Art.

President.

PETER COOPER.

Treasurer.

WILSON G. HUNT.

Secretary.

ABRAM S. HEWITT.

Trustees.

PETER COOPER.
DANIEL F. TIEMANN.
JOHN E. PARSONS.
WILSON G. HUNT.
EDWARD COOPER.
ABRAM S. HEWITT.

Director.

RICHARD S. SMITH, A. M.

Clerk.

JOHN P. APPLETON.

Advisory Council of the School of Design.

MISS MARY M. HAMILTON.
MRS. JONATHAN STURGES
MRS. GEO. CURTIS.
MRS. HENRY M. FIELD.
MRS. RICHARD HILDRETH.
MRS. S. L. M. BARLOW.
MRS. HAMILTON FISH.
MRS. R. OGDEN DOREMUS.
MRS. WM. H. JONES.
MRS. V. BOTTA.
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MRS. A. M. COZZENS.
MRS. WM. H. OSBORN.
MRS. ROBERT GRACIE.
MRS. C. M. KIRKLAND.
MISS HELEN RUSSELL.

INSTRUCTORS.

School of Design for Women.

MRS. HENRY M. FIELD.
JOHN W. EHNINGER.
ROBERT O'BRIEN.
JERVIS McENTEE.

Mathematics.

HENRY T. FORD.
N. DANA WELLS.
JOSEPH NIMMO, Jr.
JAMES D. WILSON.

Chemistry.

JOHN C. DRAPER, M. D.
P. H. VANDERWEYDE, M. D.

Architectural Drawing.

CLARENCE COOK.
E. J. M. DERRICK.

Mechanical Drawing.

J. W. SILL.
F. L. VINTON.

Free-Hand Drawing.

CONSTANTINE HERZBERG.

Vocal Music and Vocal Physiology.

CHARLES A. GUILMETTE, M. D.

REPORT.

In accordance with the charter, the Trustees have duly rendered to the Common Council of the city of New York and the Legislature of the State "an annual account, under oath, of all their receipts and expenditures" for the year 1860, a copy of which is prefixed to this Report. They deem it their duty, however, to satisfy the just demands of the public for more detailed information in regard to the progress and operation of the Institution confided to their management.

The Trust Deed, a copy of which was published in the First Annual Report, requires that the revenues of the corporation shall be devoted to and among the following objects and purposes:—

"1. To regular courses of instruction, at night, free to all who shall attend the same, under the general regulations of the Trustees, on the application of science to the useful occupations of life; on social and political science, meaning thereby not merely the science of political economy, but the science and philosophy of a just and equitable form of government, based upon the great fundamental law that nations and men should do unto each other as they would be done by, and on such other branches of knowledge as in the opinion of the Board of Trustees will tend to improve and elevate the working classes in the city of New York.

"2. To the support and maintenance of a free reading-room, of galleries of art, and of scientific collections, designed, in the opinion of the Board of Trustees, to improve and instruct those classes of the inhabitants of the city of New York whose occupations are such as to be calculated, in the opinion of the said Board of Trustees, to deprive them of proper recreation and instruction.

"3. To provide and maintain a school for the instruction of respectable females in the arts of design, and, in the discretion of the Board of Trustees, to afford to respectable females instruction in such other art or trade as will tend to furnish them suitable employment.

"4. As soon as in the opinion of the Board of Trustees the funds which shall from time to time be at their disposal will warrant such an expenditure, such funds shall be appropriated to the establishment and maintenance of a thorough polytechnic school; the requirements to admission to which shall be left to the discretion of the said Board of Trustees, and shall be specifically determined by them from time to time; and which school shall, as far as possible, and as soon as possible, be made equal to the best technological schools now established or hereafter to be established. Until the funds at the disposal of the Board of Trustees shall be sufficient, in the opinion of the said Board of Trustees, for the establishment of such polytechnic school, the said Board of Trustees may furnish with rooms and accommodation for such school, and may assist in the maintenance thereof, the department of public instruction of the city of New York, the trustees of any college or university, or any other body, individual, or individuals.

"5. To provide rooms, in the judgment of the Board of Trustees, suitable for the offices of a society to be organized, as provided in the act hereinbefore specially referred to, and to be called 'the Associates of the Cooper Union for the advancement of Science and Art,' and to furnish to such society for its general meetings on one evening in each week, the great hall of the building, if the council of the said society shall require it so often."

I. FREE NIGHT CLASSES.

The provision first specified evidently contemplates the establishment of a free *night college* for the instruction of the working classes in the branches of scientific knowledge which are best calculated to be useful to them in the pursuits of life. Accordingly, the Trustees organized the following classes at the opening of the Institution, in 1859:—

Mathematics, Pure and Applied.
Chemistry and Natural Philosophy.
Mechanics, Theoretical and Practical.
Architectural, Mechanical, and Free-hand Drawing.
Vocal Music, Theoretical and Practical.

The class in Political and Social Science was not organized in consequence of the difficulty in procuring a suitable instructor.

As stated in the last Annual Report, about 2000 pupils were admitted into these classes. As was to have been expected, many of these were not prepared for the grade of study established in order to make the Institution really useful and respectable. Others again found the severe course of study prescribed distasteful, and when the zeal of novelty was worn off, retired from the classes. Others were forced to leave the Institution by the changes of residence and business incident to a great city. The Trustees are happy to state, however, that over 1000 pupils remained in the Institution at the close of the term in June last, when the examinations took place, and the certificates were awarded. The examinations were voluntary, and hence the number who actually received certificates was 363, whose names are appended to this Report. It was deemed better not to compel examinations, as the fear of a public trial would deter many, especially those advanced in life, from joining the classes. The Trustees and instructors are of opinion, however, that a much larger number in all the departments would have passed the examinations with credit to themselves and the Institution if they could have brought themselves to submit to them.

The examiners were all gentlemen of distinction in the several departments, connected with other institutions in this city, and their reports are given at length as affording the best evidence of the nature of the instruction and the progress of the pupils.

REPORTS OF EXAMINING COMMITTEES.

1. *Mathematics.*

COOPER UNION, June 8, 1860.

To the Board of Trustees: Gentlemen,—The Committee on examination in Mathematics, consisting of Messrs. G. B. Docharty, Professor of Mathematics in the Free Academy, W. G. Peck, Professor of Mathematics in Columbia College, and R. S. Smith, Professor of Mathematics in the Brooklyn Collegiate and Polytechnic Institute, were present on the evening of the 7th inst., at the examination of twenty-four pupils, that being the number who presented themselves. *Four* of these were examined in Trigonometry, and the remainder (including two female pupils) in Algebra, comprising equations of the first degree, and Geometry, comprising rectilinear plane Geometry.

The Committee concur in reporting the result of the examination as very satisfactory.

Respectfully submitted.
For the Committee,
(Signed) R. S. Smith, Secretary Committee.

2. *Chemistry.*

New York, June 6, 1860.

At the request of the Trustees of the Cooper Union, I attended (in company with Professors Joy, Gibbs, Eaton, and others,) the examination of the class in Chemistry taught by Professor Draper. After hearing the answers of each pupil to the questions propounded by the professor, I was requested to examine the pupils in any of the subjects embraced in the course. The character of the answers was such as to convince me (and I believe my associates also) that the class had been faithfully taught, and the progress made by the pupils such as did credit to themselves and to the Cooper Union. The accomplished professor has evidently given sound instruction, both in the theory and practice of chemical science.

Yours respectfully,
John Torrey.

We very cheerfully concur in the above.

Charles A. Joy,
Wolcott Gibbs.

3. *Mechanical Philosophy.*

New York, June, 1860.

To the Trustees of Cooper Union:—The undersigned having been invited to attend the examination of the class in Mechanical Philosophy, have performed the duty assigned them, and now present the following report:

The number of members of the class who presented themselves for examination was eleven, and they were examined by Professor Reuben in the general principles of Mechanics, Hydrostatics, and Pneumatics. This examination occupied an hour and a half, and was both minute and thorough. The answers by the pupils were, with few exceptions, correct and satisfactory. The Committee subsequently occupied about half an hour with a variety of practical questions, which were answered with commendable promptness and accuracy.

On the whole, the Committee are of opinion that the members of the Mechanical Class have made attainments highly creditable to themselves, and they congratulate the founder of the Institution upon the success which has attended his first year's efforts to disseminate the principles of science among the laboring classes of our city.

ELIAS LOOMIS,
JAMES RENWICK.

4. *Vocal Music.*

TRINITY CHURCH, June 22, 1860.

As one of a Committee of three, I was present at the examination of the Music Class at the Cooper Institute on the evening of the 9th of June.

The exercises were under the charge of Dr. Guilmette. Questions in the rudiments of Music were propounded by my associates on the Committee (Messrs. Scharfenberg and Timm), and the answers were correctly given. Scales in the most remote and difficult keys, both major and minor, were written upon the black-board by the pupils, with promptness and accuracy.

The results of this examination I regard as eminently creditable, both to the members of the class and to the distinguished vocalist under whose guidance such progress has been made.

HENRY S. CUTLER.

NEW YORK, June 23, 1860.

The undersigned fully concur in the above report of Mr. Henry S. Cutler.

HENRY C. TIMM,
WM. SCHARFENBERG.

The experience gained by the Trustees during the first session satisfied them that, while it was not judicious to restrict the pupils in the choice of the branches of knowledge which they might desire to pursue, the Institution could not accomplish its grand design of furnishing to the working classes a thorough education in practical science, unless the course of the Institution were definitely prescribed for such as might have the time, the will, and the energy to undertake and complete a thorough system of study.

On the 1st of October, 1860, the free night classes were resumed on the basis of the following course of study, with the provision that pupils might enter either for the entire course, or for any particular branch. Those who complete the entire course, passing a satisfactory examination in each branch, will receive, at the close of the curriculum, the diploma of "Mechanical Engineer;" while those who pursue only special branches, will receive merely certificates of proficiency in such branches, on passing the usual examination. The classes remain, as before, open to all who may choose to attend, whether they design to be examined or not.

FULL COURSE OF STUDY.

The Course of the Union will comprise a period of three years, viz. :—

First Year. *Mathematics:* Algebra, Geometry (including the geometry of the Conic Sections), and Trigonometry.

Second Year. Chemistry and Physics; Mathematics completed; Descriptive Geometry, and Mechanical, or Architectural, or Free-hand Drawing commenced.

Third Year. Analytical Mechanics, and Mechanical Philosophy; Descriptive Geometry completed; Mechanical or Architectural, or Free-hand Drawing.

The number of tickets issued for these classes is 1110, and they are distributed for instruction as follows :—

DEPARTMENTS.

1.—*The Class in Mathematics* is divided into three sections. The first, consisting of pupils who were in attendance during the session of 1859–60, is engaged in the study of Trigonometry, and meets on Monday, Tuesday, and Wednesday evenings. It is under the charge of Mr. James D. Wilson. The remaining three sections are under the charge of Messrs. Henry T. Ford, Joseph Nimmo, jr., and N. Dana Wells, meeting on Monday, Tuesday, Wednesday, and Thursday evenings, and reciting alternately in Algebra and Geometry. The number of pupils in attendance on the Mathematical course is 163.

2.—*The Class in Chemistry and Physics* is under the direction of Dr. John C. Draper, assisted by Dr. P. H. Vanderweyde. Instruction is given in Chemistry and Physical Science, with especial reference to their application to the Arts. Lectures are given on Tuesday and Thursday evenings, and examinations on the subjects of the lectures are held on Monday and Friday evenings. The average number of pupils and visitors attending on the lectures is 255. The number in attendance on the examinations is 81, and is increasing.

3.—*The Class in Architectural Drawing* is under the charge of Messrs. Clarence Cook and E. J. M. Derrick. It is divided into two sections, meeting on Monday and Wednesday, and on Tuesday and Thursday, respectively. A complete set of the Darmstadt models has been received, and placed in the drawing rooms for the constant inspection of this and the Mechanical Drawing class. The number of pupils in this class is 82.

4.—*The Class in Mechanical Drawing* is in the charge of Professor J. W. Sill and Mr. F. L. Vinton. It meets on Monday, Tuesday, and Wednesday evenings. The number of pupils enrolled in this class is 86.

5.—*The Class in Free-hand Drawing* is in charge of Mr. Constantine Herzberg. It is divided into three sections, which meet on Monday and Thursday, on Tuesday and Friday, and on Wednesday and Saturday evenings respectively. The number of pupils in this class is 132.

6.—*The Class in Vocal Music* is under the direction of Dr. Charles A. Guilmette. This class meets for vocal practice on Saturday evening, and for instruction in the theory of Music on Wednesday evening. It consists of 397 members, including both sexes. Many members of this class have, by the instruction here given, prepared themselves to earn their support as teachers and members of choirs, the aggregate salaries of such being already nearly $3000.

The following table shows the distribution of the classes thus far described, except the class in Vocal Music, among the various trades and professions represented :—

Trades and Professions.	Mathematics.	Chemistry.	Arch. Draw.	Mech. Draw.	Free-hand Dr.
Clerks, Bookkeepers, and Salesmen...	91	58	12	9	5
Machinists..................	51	9	..	74	1
Carpenters and Cabinet Makers......	23	13	62	6	4
Students..........................	10	18	6	3	2
Teachers..........................	16	12	..	1	2
Iron Workers......................	2	..	..	4	..
Brass Workers.....................	8	2	..	3	..
Pattern Makers....................	8	..	3	15	2
Jewellers............	1	7	2	2	8
Wood Moulders and Turners........	2	1	..	1	..
Draughtsman.......................	1	..	..	..	..
Real Estate Agents................	..	2	..	..	..
Insurance.........................	1	..	..	..	1
Lithographers..	1	2	1	1	1
Printers..........................	13	6	3	1	2
Types and Stereotypers............	1	2	..	..	..
Photographers.....................	2	11	1	..	3
Painters....	19	5	6	..	11
Engineers.........................	6	2	..	4	..
Civil Engineers...................	1	3	2	1	..
Mathematical Instrument Makers....	..	1	..	3	..
Car Builders......................	1	..	..	2	..
Coach Makers......................	5	2	1	3	..
Melodeon Makers...................	2	1	1	..	..
Tinsmith..........................	1	..	..	..	..
Gas Works.........................	1	..	..	..	..
Architects........................	3	1	4	2	3
Merchants.........................	..	3	..	..	..
Physician.........................	..	1	..	..	..
Dentist...........................	..	..	..	..	1
Druggists.........................	4	4	..	..	..
Carvers	1	1	..	..	..
Cigar Makers...	1	1	..	..	..
Hatter............................	1	..	..	..	..
Carried forward	277	168	104	135	46

Trades and Professions.	Mathematics.	Chemistry.	Arch. Draw.	Mech. Draw.	Free-hand Dr.
Brought forward	277	168	104	135	46
Plumbers	3	..	..	3	..
Engravers	5	3	..	..	24
Tailors	1	..	..	1	..
Stonecutters	2	..	3	1	2
Gilders	1	..	1	..	1
Mantua Makers	1	1	..	..	..
Bookbinders	4	4	1	1	1
Porter	1	..	..	..	..
Upholsterers	1	1	..	1	..
Masons	2	..	9	..	2
Locksmiths	1	2	..	..	..
Grocers	2	2	..	..	..
Silversmiths	2	3	2	..	..
Chemists	..	2	..	1	..
Glass Stainers	..	..	..	..	5
Clergymen	..	1	1	..	..
Carvers and Sculptors	2	4	2	3	22
Artists	..	..	1	..	1
Plasterer	..	..	1	..	..
Japanner	1	..	..	..	..
Hoop-skirt Manufacturers	1	..	..	1	1
Lawyers	..	2	..	..	..
Moulders	1	1	1	5	..
Blacksmiths	2	1	..	3	..
News Agent	1	..	..	..	..
Produce Dealer	1	..	..	..	..
Hair Worker	1	..	..	..	..
Ship Joiners	2	..	..	..	..
Organ Builders	1	..	..	1	..
Proof-Reader	1	..	..	..	..
Morocco-case Maker	1	..	..	..	..
Portmonnaies	1	..	..	1	..
Sugar Refiners	1	1	..	1	..
Gymnast	1	..	..	..	..
Metal Spinner	1	..	..	..	..
Tin-foil Manufacturer	1	..	..	..	..
Reporter	1	..	..	..	..
Marble Workers	1	..	1	..	14
Opticians	1	1	..	..	..
Bricklayers	1	1	3	1	..
Artificial Flower Makers	1	1	3	..	..
Agriculturist	1	..	..	..	..
Paper Makers	1	..	1	..	..
Decorative Painters	..	..	..	1	8
Glass Blowers	..	1	..	1	..
Piano-forte Makers	..	1	..	2	..
Safe Makers	..	..	..	1	..
Carried forward,	330	201	132	164	137

Trades and Professions.	Mathematics.	Chemistry	Arch. Draw.	Mech. Draw.	Free-hand Dr.
Brought forward	330	201	132	164	137
Sail Maker	..	..	1	..	..
Milliners	..	3	..	..	..
Calico Designer	..	1	..	..	..
Sand-paper	..	1	..	..	..
Varnish Manufacturers	..	3	..	..	..
Junk-shop	..	1	..	..	..
Paper Ruler	..	1	..	..	..
Chronometer Maker	..	1	..	..	..
Sal-soda Manufacturer	..	1	..	..	..
Map Colorer	..	1	..	..	..
Picture-frame Maker	..	..	1	..	..
Sash Maker	..	..	1	..	..
Shipsmith	..	..	1	..	..
Builders	.	5	3	..	..
Paper Hanger	..	..	..	..	1
Cutler	..	..	..	..	1
Die Sinker	..	..	..	..	1
Etcher on Glass	..	..	..	..	1
Cornice Maker	..	..	1	..	..
Not specified	10	20	4	6	8
Total	340	240	144	170	139

Aggregate, 1033. School of Design and class in Vocal Music not included.

The ages of the pupils in the several classes are presented in the following table:

	Mathematics.	Chemistry.	Arch. Draw.	Mech. Draw.	Free-hand Dr.
Number of Pupils below 20 years	153	96	47	53	75
" " (20 to 30)	154	92	68	102	36
" " (30 to 40)	24	26	19	13	7
" " (40 to 50)	3	7	1	1	1
" " (50 to 60)	..	3	..	..	..
" " (60 to 70)	..	1	..	..	..
Not specified	6	15	9	1	20
Total	340	240	144	170	139
Females included in the above	20	34	..	..	..

The amount expended during the year for instruction in the night classes, independently of apparatus, furniture, and lighting, was $5571.95, and the Trustees feel that they have every reason to congratulate the community upon the entire success of the attempt to afford free scientific instruction, at night, to those who by their daily occupations are deprived of the admirable advantages offered in this city for similar instruction in our public schools and colleges. The attention and patience of the pupils are worthy of all praise, and although they undoubtedly require more careful drilling than seems to be necessary for those who devote themselves exclusively to study, the results appear to be more permanent, and the acquisition of knowledge more thorough.

In connection with the night classes, a Debating Society has been formed by the pupils, which meets on Saturday evenings, and consists of about seventy-five members, who avail themselves with great zeal of this mode of self-improvement.

FREE READINGS.

By the liberality of an enlightened citizen of New York, the Trustees have been enabled, since the 1st of January, to offer to the working classes a course of Free Readings in polite literature, on Wednesday evening of each week. The lecture-room will accommodate nearly 500 persons, and thus far not a seat has been vacant. The course will be continued until the 1st of April next, and care will be taken to combine instruction with amusement. This experiment has settled the fact that the taste for elegant and refined amusement exists among the working classes of this city; and if our public-spirited citizens would by special donations enable the Trustees to give Free Readings on every evening of the week except the Sabbath, it appears to be certain that the lecture-room would be filled, and great numbers of our worthiest people be enabled to become familiar with the best authors in poetry, history, biography, travels, fiction, and other branches of literature, under circumstances which would foster the taste for reading and develop the kindly affections of the human heart. In London this mode of instruction has been tried with great success, and the most eminent men in politics and literature give evenings for reading to the people, and thus share with them the riches of their own particular studies. The Trustees will be happy next year to open the lecture-room, free of charge, to competent gentlemen who will read, or will employ readers for liberal persons who may desire to defray the cost.

II. FREE READING-ROOM AND PICTURE GALLERY.

Under the second provision of the Trust Deed, the Trustees have established, in the great room on the third floor of the building, a Free Reading-Room and a Free Picture Gallery.

The Reading-Room is supplied with the following Papers and Magazines:—

New York Dailies.

Commercial Advertiser.
Courier and Enquirer.
Courrier des Etats Unis.
Daily News.
Day Book.
Evening Express.
Evening Post.
Journal of Commerce.
Morning Express.
New York Herald.
" Sun.
" Times.
" Tribune.
" World.
New Yorker Staats Zeitung.

Dailies of other Cities in the United States.

Albany Evening Journal.
" Evening Standard.
Alta California.
Baltimore American.
Boston Post.
Buffalo Republic.
Charleston Daily Mercury.
Chicago Press and Tribune.
Cincinnati Commercial.
" Times.
Cleveland Plain-Dealer.
Congressional Globe.
Detroit Advertiser.
Louisville Journal.
Missouri Democrat.
Mobile Register.
Nashville Union and American.
Newark Mercury.
New Orleans Picayune.
Philadelphia North American.
Pittsburg Post.
Portland Daily Advertiser.
Richmond Enquirer.
Syracuse Daily Standard.
Utica Morning Herald.
Washington National Intelligencer.

Foreign Dailies.

Algemeine Zeitung.
Aftonbladet. (Swedish.)
Brussels l'Independance.
Journal Des Debats.
La Presse.
London Daily News.
" Times
Montreal Gazette.
Paris Charivari.

Weeklies of New York.

Albion.
American Engineer.
" Publishers' Circular.
" Railroad Journal.
" Railway Review.
Architect and Mechanic.
Banner of Light.
Century.
Christian Advocate and Journal.
" Inquirer.
" Intelligencer.
Church Journal.
Churchman.
Country Gentleman.
Evangelist.
Frank Leslie's Illustrated.
Frank Leslie's Illustrirte Zeitung.
Gewerbe Zeitung.
Harpers' Weekly.
Herald of Progress.
" Truth.
Home Journal.
Household Journal.
Illustrated News.
Independent.
Irish News.
Jewish Messenger.
Life Illustrated.
New Church Herald.
New Jerusalem Messenger.
New York Bee.
" Chronicle.
" Freeman's Journal.
" Leader.
" Ledger.
" Musical Review and World.
" Observer.
" Traveller.
New Yorker Handels Zeitung.
Our Union.
Phœnix.
Presbyterian.
Protestant Churchman.
Scientific American.
Scottish American Journal.
Shipping and Commercial List.
Spirit of the Times.
Vanity Fair.

Weeklies of other Cities in the United States.

Boston Commercial Bulletin.
Calendar.
Dwight's Journal of Music.
Littel's Living Age.
Manhattan Express.
New London Repository.
Rockport Democrat.
Southern Field and Fireside.

Foreign Weeklies.

ENGLISH.

All the Year Round.
Athenæum.
Bell's Life in London.
Cassell's Illustrated.
Chemical News.
Critic.
Dublin Nation.
Economist.
Edinburgh Witness. (Semi-weekly.)
Examiner.
Illustrated News.
" " of the World.
" Times.
Jewish Chronicle.
Lancet.
Leader.
Literary Gazette.
London American.
London Mining Journal.
London Review.
Mark Lane Express.
Once a Week.
Press.
Punch.
Saturday Review.
Spectator.
St. John's Courier.

FRENCH.

Cosmos.
Journal Pour Tous.
L'Esperance.
L'Illustration.

GERMAN.

Ausland.
Blatter fur Litterarische Unterhaltung.
Bremer Handelsblatt.
Fliegende Blatter.
Illustrirte Zeitung.
Kladeradatsch.
Lesefruchte.

Magazines.

AMERICAN.

American Agriculturist.
" Journal of Education.
" " Medical Science.
" " Science and Art.
" Life Assurance Magazine.
" Medical Monthly.
" Merchant.
" Messenger.
" Theological Review.
Arthur's Home Magazine.
Atlantic Monthly.
Banker's Magazine.
Beauty of Holiness.
Bible Society Record.
Chemical News.
Chess Monthly.
Child at Home.
Christian Examiner.
Congregational Quarterly.
Cosmopolitan Art Journal.
Crayon.
De Bow's Review.
Eclectic Magazine.
Fireside Monthly.
Gas-Light Journal.
Godey's Lady's Book.
Hall's Journal of Health.
Harpers' New Monthly.
Herald of Light.
Historical Magazine.
Homœopathic Review.
Horticulturist.
Humphrey's Photographic Journal.
Hunt's Merchant's Magazine.
Journal of the American Geographical and Statistical Society.
Journal of the Franklin Institute.
" of Missions.
Knickerbocker.
Ladies' Repository.
Magazine of Horticulture.
Methodist Quarterly.
Mining Magazine.
New Englander.
New England Magazine of Industry.
" Historical and Genealogical Register.
New York Teacher.
North American Review.
Peterson's Magazine.
Presbyterian Quarterly.
Pulpit and Rostrum. (Occasional.)
Swedenborgian.
University Quarterly.

ENGLISH.

Annals and Magazine of Natural History.
Artisan.
Art Journal.
Bentley's Miscellany.
" Quarterly Review.
Blackwood's Magazine.
British Quarterly.
Builder.
Canadian Naturalist and Geologist.
Chambers' Journal.
Christian Observer.
Civil Engineer and Architect.
Colburn's New Monthly.
" United Service Magazine.
Cornhill Magazine.
Dublin University Magazine.
" Review.
Eclectic Review.
Edinburgh New Philosophical Journal.
" Review.
English Journal of Education.
Frazer's Magazine.
Gentleman's Magazine.
Journal of the Royal Geographical Society.
" " Society of Arts.
" " Statistical Society.
" of Sacred Literature.
London Review.
London, Edinburgh and Dublin Philosophical Magazine.

Mechanic's Magazine.
Mining Journal.
National Magazine.
" Review.
Nautical Magazine.
New Quarterly Magazine.
Newton's London Journal.
North British Review.
Notes and Queries.
Philosophical Magazine and Journal.
Photographic Art Journal.
Practical Mechanic's Magazine.
Quarterly Journal of the Chemical Society.
Quarterly Journal of the Geological Society.
Quarterly Journal of Microscopical Science.
Quarterly Journal of Pure and Applied Mathematics.
Quarterly Review.
Repertory of Patent Inventions.
Scottish Review.
Sharpe's London Magazine.
Tait's Edinburgh Magazine.
Temple Bar.
Westminster Review.

FRENCH.

Annales de Chimie et de Physique.
" des Mines.
Bibliotheque Universelle.
Bulletin de la Societe d'Encouragement d'Industrie.
Bulletin de la Societe de Geographie.
Comptes Rendus de l'Academie.
Encyclopedie d'Architecture.
Genie Industriel.
Journal de l'Ecole Polytechnique.
" des Economistes.
Le Technologiste.
Magazin Pittoresque.
Revue Contemporaine.
" des Deux Mondes.
" Germanique.
Seances et Travaux de l'Academie.

GERMAN.

Annalen der Chemie und der Pharmacie.
Archiv fur Naturgeschichte.
Deutsche Gewerbe-Zeitung.
Deutsches Museum.
Deutsche Vierteljahr Schrift.
Hausblatter.
Illustrirte Familienbuch.
Petermann's Mittheilungen.
Poggendorf's Annalen der Physik.
Polytechnisches Centralblatt.
" Journal.
" Notizblatt.
Westerman's Monatshefte.
Zeitschrift fur Algemeine Erdkunde.
" Staats Wissenschaft.

ITALIAN.

Revista Contemporanea.

These periodicals were supplied at a cost of $2057.52 for the year. The room is open from 8 A. M. to 10 P. M., and is warmed by steam and lighted with gas in the best manner, at a cost of but $1500 per year additional, making a total expenditure of about $3500. The number of visitors is steadily increasing. At the date of the last Annual Report, it averaged about 3000 per week. During the last year, the number has averaged about 5100 per week. Of the visitors about five per cent. are females. The increase of visitors is due partially to the fact that the existence of the Free Reading-Room is becoming better known, and partially to the establishment during the year of a reference library, from which books may be taken on application to the attendant, for reading in the room. This reference library now contains about 4000 volumes, but both the number of volumes and the character of the books are far inferior to the requirements of such a library. The working classes of this city, being employed at their business during the day, can rarely avail themselves of the rich treasures of the Astor Library, which is closed at night for reasons which are conclusive with the trustees of that admirable charity. It is practically a library for scholars, and it is doubtful whether, in attempting to meet the wants of another class, it would not lose in a great degree the special value which it now possesses for the quiet student and the patient investigator. The Cooper Union, on the other hand, is the favored resort and the more congenial atmosphere for the working classes. Its reading-room open at night offers a comfortable repose and relaxation from the labors of the day. But the current literature of the day does not suffice for all their wants. The past history and standard works of elementary science, and the records of inventions, are treasures to which they eagerly desire access. To meet their wants, a reference library of at least 25,000 volumes is required. The Free Reference Library of Liverpool contained in 1858, 26,708 volumes. The Free Library of the city of Boston contains a still larger number. Both these libraries are maintained by public taxation, and judging from the liberal manner in which they are fostered, the expenditure is deemed wise by the community for whose benefit and by whose money they are sustained. The Trustees of the Cooper Union believe that the citizens of New York are sufficiently enlightened and liberal to enlarge its free reference library by individual efforts and donations, and they therefore bring the matter to the attention of their fellow-citizens, in the hope that before the close of another year the library may be greatly enlarged, and its consequent value and usefulness extended. Their revenue is adequate for the care of the room and of the books, but it is not sufficient for their purchase. During the last year the Boston Library has received 16,000 volumes from the late Theodore Parker, and 2418 volumes from Mr. George Ticknor. In this city there are many large private collections, which, doubtless, the owners will regret to have scattered, and may possibly desire to appropriate to the public. In the Cooper Union they can have a resting place which will for all time perpetuate the memory of the donor, and afford instruction and profit to the working men of this metropolis.

The Picture Gallery adjoining the Reading-Room continues to be a very attractive feature of the Institution. It still contains the Bryan Gallery, besides many other pictures of individual owners. The Trustees are ready at all times to receive such approved pictures as their owners may see fit to exhibit to the public, whose tastes are refined and cultivated by the opportunity to see freely and study carefully the works of genius of our own and other lands.

III. SCHOOL OF DESIGN FOR WOMEN.

This department of the Institution being intended exclusively for females, and to give them a profession or trade by which, as artists, teachers, designers, or engravers, they may earn a livelihood, is carried on by day. It is open from 9 A. M. until 3 P. M. for instruction, and until night for practice. It occupies one entire floor of the building, having been enlarged during the past year, in consequence of the great number of applicants for admission, at a cost of over $3000, which sum is included in the item of "repairs and improvements" in the financial statement. This enlargement, completed during the vacation, led to the reorganization of the School, Mr. T. Addison Richards, N. A., who had previously conducted the School with great ability, retiring voluntarily from his position as Director. Mrs. Henry M. Field, one of the Advisory Council of Ladies, at the urgent request of the Trustees, accepted the place of Principal of the Art Department. Mr. John W. Ehninger is instructor in the Department of Figures, and Mr. Jervis McEntee in Landscapes. Mr. Robert O'Brien still has charge of the Engraving Department, while the Director of the Institute, Richard S. Smith, A. M., in addition to the general supervision of the School, gives instruction in Geometrical Drawing. The School is now organized to the satisfaction of the Trustees, and the pupils are full of ambition and energy. In the month of April last, the pupils gave an evening reception to the public, at which over 3000 of the ladies and gentlemen of New York assisted, and became somewhat familiar with the objects and progress of the School.

The number of pupils in the School December 31st was 132, but at the present time (February 1st) has increased to 168. The expense of maintaining the School last year was $2370.50, but, in consequence of the increased number of pupils and teachers, it will be much greater during the present year.

The earnings of the School, which, by the rules of the Institution, belong to the pupils who do the work, was $1121.77, and have been paid over to them accordingly. The School is under the general supervision of a council of ladies who take an interest in art, and in the success of any effort which promises to afford a suitable and remunerative outlet for female labor. For their patient attention and generous service the Trustees express their grateful thanks. Without the aid of the Advisory Council of Ladies it would be quite impossible for the Trustees, however much disposed, to afford the sympathy and encouragement which are essential for the proper development of the talents of the children of genius who compose the School, and for the formation of character, which, at their early years, requires to be moulded by the more appreciative comprehension of the refined and intelligent of their own sex. If the Trustees were at liberty to record the examples of heroic sacrifice and patient struggles under the depressing influence of penury, which the history of some of the pupils affords, the hearts of the benevolent would be thrilled with emotion, and many more of our ladies of social rank would desire to connect themselves with the management of the School. If this slight allusion to the sacrifices which female genius is compelled to make in order to achieve the means of future usefulness, should interest any lady of refined tastes, or create the desire of aiding in the good work, the Trustees will be but too happy to avail themselves of any additional influence and advantage to the pupils which can be thus secured. Many of the pupils come from a distance, and are strangers in this great city, and without the valuable supervision and ready sympathy of the ladies who now devote themselves daily to the School, the Trustees would tremble at the responsibility which necessarily attaches to its management. A number of our leading artists have also been recently invited to form an

Advisory Council in the Art Department, and many of them have already indicated their willingness to assist gratuitously.

In view of the general conviction in the public mind of the necessity for enlarging in every possible way the sphere of female occupation, the Trustees cannot doubt that the School of Design will commend itself to general sympathy and approbation. If any other evidence were necessary, the numerous advertisements which appear in the daily papers of the attractions (in the shape of not merely "pretty" but "accomplished waiter girls") offered by certain places of amusement which have become very numerous in this city within the last few years, would demonstrate conclusively that females are compelled to resort for a livelihood to occupations which must be peculiarly revolting to the purity and sensitiveness which naturally characterize the feminine mind. A French writer, M. Lagrange, has recently made an appeal in behalf of the establishment of government Schools of Design, based upon such conclusive arguments, expressed in terms so suitable for this Report, that it is deemed expedient to extract from *The Crayon*, in which the article has been reproduced, a portion of his judicious remarks. After recalling the names of many female artists of celebrity, he says, in reference to the ordinary avenues for female genius:—

> "That Music and Dancing are not the only arts that conduct women to fame and fortune, the above instances abundantly demonstrate. Painting, Engraving, and Sculpture, similarly encouraged, promise equal success; they provide a more assured support, in its being better acquired, and a more substantial renown, and especially a calmer and chaster existence. In the crowd of those above referred to, we must admit that some there are who could not be cited as models of domestic life. None, at all events, found in the art to which they were devoted a daily temptation and a lasting snare—a permanent and always craving abyss for victims; none have been placed in that horrible alternative of either abandoning a vocation that supports them, or of dissolving the ties that minister to a pure social intercourse. With the candidate for the stage how different! She early finds on the benches of the *Conservatoire* glances that offend her; the day she passes its threshold a life of risk opens itself before her, and risk in the life of a woman is but a synonym for disorder. Driven

from city to city in quest of precarious engagements, and exposed to the questionable attentions that custom allows, open to the wiles of infamous agents, and ever struggling with cupidity and ignorance, in the duel between honor and fame she too often loses one without gaining the other, and is forced to descend from the wooden platform where she has fruitlessly paraded herself, to sink into the arms of misery, full of remorse and disgust at ever having drawn the breath of life. The musical artist encounters fewer perils of this kind. But is it not too much to ask of the modesty of woman not only a public exhibition of her talents, but also to demand her presence? Fortunate are those who, after long and patient effort, reach such a point of success as to exhibit themselves but for a few hours in a public concert! How many pass their lives in plodding from house to house, rating their talents by a scale of wages, and never crossing the line that separates them from the position of an artist.

"Very different is the condition of the women who devote themselves to the arts of Design. Painter, Engraver, or Sculptor, it is her works alone that claim the public eye. Her person is sacred; no one dares to lift the veil that conceals her countenance; no one presumes to call upon her to courtesy to feeble applause. A young girl, chaste and pure, she may watch by the lonely hearth-side; a wife, she may not see her smiles and caresses in dispute as the seal of a purchased right; a mother, she may educate her children under a name that they will never be tempted to despise. Exhibitions, open to everybody, will afford the public an opportunity to measure her talent or genius; critics will confine their attacks to her works, and praise, if she deserves it, will reach her eyes and ears in terms that she will be able to listen to or peruse without the accompaniment of a blush. The capital point which separates such a one from musicians and singers is this, that the female painter or engraver may follow her profession in the shadow of retirement, overlooked, never publicly advertised, and never summoned to appear before the curious and heartless world; in the occupation which art affords her, she finds ample resources for maintaining the honor of life, whatever may be her grade in society. With the *cantatrice*, the actress, and the *danseuse* it is different—they must possess genius; it is the condition of their education to aspire to the highest rank. What pupil of the Conservatory would, on graduating, resign herself to the office of a chorus singer, and be content with that rôle the remainder of her life? Can a female instrumentalist take her seat in the orchestra of a petty theatre? No. For one and for the other, to excel is a cruel necessity; both contemplate the musical *Conservatoire* as the cradle of a prima donna.

"Were there a *Conservatoire* for education in drawing, not only would artists spring from it, but there would also arise from its benches honest, accomplished laborers. Plastic art—all art that deals with forms and the representation of forms—is great and beautiful in this, that it is not restricted to the summits of excellence, but by gentle gradations descends into the minute and familiar details of ordinary life. Like the waters that flow from the glaciers, Art spreads in countless and invisible streams beneath life's verdure, winding at the bases of its hillocks, here plunging in cascades, and there gently murmuring between rocky banks, ever freshening our impulses, and commingling with the common requirements of daily experience. There is no object used by us that is not within the domain of art, because there is none for which art, aided by taste, has not put in operation some of the inert forces of nature. Musical taste nowhere comes in contact with daily wants; plastic taste touches every thing. Musical taste is a luxury; plastic art is a prime necessity. The female artist, although she may not cover grand canvases, may still pursue painting profitably. What hand so delicate as that which decorates the exquisite porcelains that we love to see around us? Who can produce upon the ivory, with a like sentiment of maternal tenderness, the features of a cherished infant? And to descend to the precincts of a trade, where shall we find, except among women, the patience and carefulness required in the coloring of botanical plates and every description of illustrative art? The publishers already employ hundreds of women to illuminate books. It is to feminine hands, incapable of erecting massive stone monuments, that is assigned the labor of building the pasteboard structures that supply the holiday joys of children. Not only in the merely industrial branches of art are women useful, but equally so are they in other departments. Is it not a ridiculous sight, a broad-shouldered man, with voluminous whiskers, tracing designs for laces and embroidery? At Lyons, the manufacture of diverse stuffs absorbs the hands of thousands of men and women, but the men, only, enjoy the privilege of inventing combinations of forms and colors destined to inveigle the eyes of fashionable caprice. Is there not a contradiction in this? Should not feminine taste, developed by artistic education, embroider itself upon the shawls, the carpets, the ribbons, and other brilliant fantasies in the world of dry-goods?

"The carpets of Smyrna and of Caramania, so widely esteemed, are evidence of what woman's genius can produce.

They are all woven by feminine hands. When a child is old enough to manage a netting-needle, wools of all kinds and colors are placed in her hands, and a cord is stretched between two trees, and they then say to the young workman, 'It is with thyself to make thy dowry!' A rude model, the traditions of the village, the example of her mates, and the advice of her mother, are her only guides; she has no master but fancy, and it is according to the caprice of her taste that she assorts the colors and combines the lines. The work drags slowly along. Every year adds a mite to its length, until finally comes the time when she is obliged to think of marriage. The hand of the workman is stayed, the carpet is sold, and the product becomes the dowry of a youthful wife. Another illustration, nearer to our own times. At Nantes, in France, there is a manufactory of stained glass which has already provided beautiful windows for various churches in Paris and elsewhere. Do the public know who painted them? Women. The manufactory is a convent, one of the strictest of those among female communities that interdict all intercourse with the outside world—the Carmelites. They began by painting banners for poor churches; then as a new chapel was just constructed for them, they had the good sense and good taste to substitute stained glass for the white panes which were in preparation for the sashes. With no resources beyond those they possessed within the walls of a cloister, or those that could be introduced through the narrow openings of a grating, hung with a black veil of double thickness, without instructors, and with no models but engravings, these courageous women accomplished their self-imposed task. They not only succeeded in establishing a studio of painting on glass that provided for their own necessities, but it has been the object of public reward in the Great Exhibition of 1855. This establishment, in every department, is now conducted exclusively by women, and it rivals the manufactories of Tours and Clermont.

"We should see other marvels of the fine taste of women, if, directed and nourished by a good education, it could be substituted for the taste of men in certain branches of industrial art. Jewelry offers them a vast field—one in which they might accomplish most of the labor. In wood-sculpture all that belongs to its simple ornament might receive a special grace from their inspiration. Those who would provide the richest stuffs for our furniture, would also know how to invent the most elegant forms to be covered by them. Lithography, engraving, and especially engraving on wood, would gain in quality by passing from men's hands to the hands of women.

"Man is not made for sedentary life; woman, on the contrary, conforms to it without inconvenience; she better maintains that close, unceasing attention, that motionless activity which the engraver's pursuit demands. Her nimble fingers, accustomed to wield the needle, lend themselves more easily to minute operations, to the use of small instruments, to the almost imperceptible shades of manipulation that wood engraving exacts. Cutting on copper and steel demands also a patience and minutia much more compatible with the nature of woman than with that of man. It is only in *womanizing* himself, in some degree, that man succeeds in obtaining the development of these faculties so contrary to his physical constitution, and always at the expense of his natural force.

"Finally," says M. Lagrange, in this part of his subject, "there would be every advantage both to art and to the sex to see women more generally practise the fine arts. This result might be obtained, if our civilized society would recognize and provide means of education similar to those provided for men. More cannot well be asked, nor less refused to those who contribute equally to the progress and refinement of humanity."

The Trustees again call the attention of the public to the importance of increasing the collection of models, studies, and books upon art attached to the School of Design. It is indispensable to the proper development of the School that the means of improvement should be supplied with no stinted hand. A library of elementary and illustrated books is in process of formation, but if its value to the pupils could be fairly appreciated by the public, its increase would be more rapid. The progress of the pupils would be greatly promoted if, in addition to the practice in the School, they could be supplied with books for study at home. Notwithstanding the appeal made by the Trustees last year, on this subject, and the great crowd who attended the annual reception, but one donation has been made to the art treasures of the School during the last year, and that was received from the sister School of Design in Moscow, Russia, through the kindness of Major Delafield, the Superintendent of the Military Academy at West Point, and is hereby gratefully acknowledged. Photographs of good models will be especially welcome, as affording the best guide to the proper distribution of light and shade in drawing from casts.

For the information of the public the rules and regulations adopted for the government of the School are annexed:—

"RULES AND REGULATIONS.

"1. The number of pupils is limited to three hundred. Those intending to teach and to pursue art as the means of securing a livelihood, shall form a class, consisting of two hundred members, and known as the *Teachers' and Industrial Class.* These shall be received without charge. The remaining one hundred pupils will constitute the *Amateur Class*, and shall consist of ladies who desire to study art as an accomplishment. Such pupils will pay one dollar per week for instruction in Drawing, and one dollar and fifty cents per week for instruction in Pastel, Water Color, or Oil Painting.

"2. The Annual Term will commence on the first day of October, and terminate on the thirtieth day of June, in each year.

"3. All pupils, whether Industrial or Amateur, will provide themselves with the materials required for their instruction, including pencils, paper, crayons, colors, and brushes.

"4. Pupils will not be permitted to remain members of the School longer than four years; but will be fitted for particular pursuits in as much less time as may be practicable. Certificates will be given to each pupil on completing the course, specifying the pursuit for which she has been prepared.

"5. Instruction will be given in Drawing—from the flat, from casts, and from nature; in Wood and Copper Engraving and Lithography; in Designs for Manufacturing; in Painting—in pastel, water colors, and oil; and such other branches of Art as may from time to time be found useful or ornamental.

"6. Pupils on entering the School, will indicate the object of their studies, and be classed accordingly, as

"1. Amateurs.
"2. Preparing to become Teachers.
"3. Professional or Industrial.

"7. *The Amateur Class* will be composed of paying pupils, who desire instruction in drawing figures, landscape, genre, or flowers; in painting in oil, pastel, or water colors. The *attendance* of this class will not be subject to strict rule, but instruction will be given only in the forenoon, from 9 to 12; the pupils may, however, attend for practice at any other hours. When in the School, members of the Amateur Class must comply with the rules, and be subject to the direction of the teachers.

"8. Pupils preparing to be *Teachers* will receive the same instruction as Amateurs, but must attend from 9 to 3 daily, unless specially excused by the Director, for adequate reasons. Such pupils will be employed as monitors, from time to time, in the classes of beginners, in order that they may actually practise their duties before receiving their diploma certifying their ability to teach.

"9. *The Industrial Class* will be composed of pupils who wish to apply their knowledge of Art to practical uses. They will attend for six hours daily, as in the case of the Teachers' Class, and will be instructed in ornamental, mathematical, and perspective drawing, painting in water colors, and painting of flowers and composition applicable to every branch of industrial decoration.

"10. The teachers are required to be diligent and courteous in the performance of their duties; but under no circumstances are they to touch up the work of the pupils, the object being for the pupil *to do the work*, and for the teacher to point out defects and proper methods.

"11. In the method of pursuing their studies, the choice of models, and their position in the rooms, the pupils will be subject to the judgment of the Principal, and no pupil will be permitted to change her model or her place without her express permission.

"12. The School will be visited by an Advisory Council of Ladies and Artists, whose duty it shall be to report to the Trustees, in a book provided for that purpose, on the condition of the School and the progress of the pupils. Free pupils, who, from lack of talent or industry, do not give evidence of satisfactory progress, will be dismissed from the School. Any breach of good behavior will be followed by prompt dismissal.

"13. The Drawings must all be marked by the name of the pupil, and of the class and division to which she belongs, and be exhibited in the different rooms, being changed every month, and according to the progress thus indicated the pupils will be promoted. Pupils in the Amateur Class will be subject to this rule. The Drawings will be the property of the pupils, and may be removed from time to time, with the consent of the Director, but every free pupil will be required, on quitting the School, to leave behind one specimen of her work, for the permanent gallery of the School.

"14. A special teacher will be provided for engraving on wood and copper, and for lithography, and a special class formed, into which pupils will be admitted as soon as they have acquired an adequate knowledge of drawing. Orders will be received in the School by the Director for engraving, and will be executed by the pupils to whom he may assign them, and the money thus earned will be paid to the pupils who may be entitled to it. But it is distinctly declared that the School is not to be converted into a workshop, and hence, when the number of skilled pupils becomes inconveniently large, the pupils must retire from the School, but orders will be received at the School and given out to those who have been pupils, to be executed at home.

"15. Whenever diagrams or drawings are required in the other departments of the Union for the purposes of instruction, the Director will have them executed by the pupils of the School, who are to make no charge for the same.

"16. Visitors will be received at any time between 1 and 4 o'clock.

"17. No instruction will be given on Saturdays, but the School will be open for practice."

The Trustees having completed the survey of the departments of the Union already organized and in actual operation, come now to the consideration of the fourth and fifth sections of the Trust Deed, in reference to which they have not as yet been able to take positive action.

IV. POLYTECHNIC SCHOOL.

The establishment of the Polytechnic School is made dependent upon the receipt of sufficient revenue to warrant the outlay. The financial statement shows that the revenues of the corporation have been all absorbed in the execution of the prior requirements of the Trust Deed. The Trustees are empowered "to furnish with rooms and accommodation for such school, the department of public instruction of the city of New York, the trustees of any college or university, or any other body, individual, or individuals." No such opportunity has yet presented itself, and although the Trustees feel assured that after a short time such a school will be self-sustaining, so far as the cost of instruction is concerned, they have not felt authorized to assume any obligation which might impair the successful execution of the prior duties imposed upon them. The necessity, however, for such a school becomes every day more apparent. Already the intelligent citizens of Boston are moving, with their accustomed spirit and liberality, in the establishment in that city of an Institute of Technology, one of the main features of which is a polytechnic school. The very able report of Professor W. B. Rogers on the subject, shows so clearly the value and indispensable importance of such a school to any highly civilized community, that the Trustees take the liberty of quoting his statement at length, in the hope that it may possibly awaken the attention of some of our citizens who may desire to aid in the immediate establishment of such a school in this city, where the rooms and the apparatus are already provided, and a guarantee of a comparatively small sum annually would be adequate for the purpose.

"The productive talent of the community, as measured by its proficiency in the practical arts, requires for its steady and rapid development other helps than can be offered by the treasures of a Museum, or the discussions and publications of a Society. While it would, doubtless, profit largely by the opportunities for instruction which collections and publications can afford, it demands yet more urgently that *systematic training in the applied sciences*, which can alone give to the industrial classes a sure mastery over the materials and processes with which they are concerned.

"Such a training, forming what may be called the intellectual element of production, has, we believe, become indispensable to fit us for successful competition with other nations in the race of industrial activity, in which we are so deeply interested. In the communities abroad, where manufactures and the mechanic arts have attained the greatest proficiency, and are now making the most rapid advances, such an education in practical science is recognized as the chief instrument in their extension and improvement; and the Schools of Practical Science, and the Polytechnic Institutes, designed to form an industrial class thus thoroughly trained in the principles of their respective arts, are highly honored, as well as liberally, and even munificently, endowed.

"Fortunately, in this community, the education of the public schools is so general, and of so high a grade, that a good proportion of those who are destined for industrial pursuits are already well prepared to profit by the teachings and exercises of a School of Scientific Technology. Indeed, considering our acknowledged superiority in this respect as compared with other nations generally, and having in view the eminently practical nature of the intellectual training incident to our social and political organization as a people, it can hardly be questioned that we are in a most favorable condition for attaining excellence in the pursuit of the practical sciences, and for reaping the highest advantages from their application in the wide fields of commerce, agriculture, and the mechanic and manufacturing arts.

"It would seem, therefore, eminently expedient, in the organization of the Institute, to make provision for a Department to be called a *School of Industrial Science and Art*, in which regular courses of instruction should be given, by lectures and other teachings, in the various branches of the applied sciences and the arts; and where persons destined for any of the industrial pursuits might, at small expense, secure such training and instruction as would enable them to bring to their profession the increased efficiency due to enlarged views and a sure knowledge of fundamental principles, together with adequate practice in observation and experiment, and in the delineation of objects, processes, and machinery.

"Without attempting, at present, to frame a very definite organization for this branch of the Institute, but looking rather to its practical recognition, in the beginning, as an integral part of our plan, however imperfectly carried out, we would mention certain departments of instruction, which we think could be advantageously established, even in the commencement of our enterprise. Among these, the first would be a

"School of Design.

"This Department, looking chiefly to industrial uses, would aim to prepare its pupils for efficient service in the ornamental branches of manufactures, as well as in the pursuits of the mechanician, architect, and engineer; at the same time laying so broad a foundation of instruction, as to be a valuable help to general education, and to the higher culture of the Fine Arts. It should, therefore, be equipped with all the means for effective instruction, not only in geometrical, architectural, and free drawing, and the delineation of the apparatus and machinery of the arts, but in the copying and designing of figures and patterns for textile and other fabrics; in the making of patterns and models for fictile and metallic wares; in the principles regulating the arrangement and combination of colors, applied to these and other products; and in the scientific basis and leading operations of the arts of engraving and photography.

"Such a practical training in the appropriate branches of drawing and design is of obvious necessity in the pursuits of the engineer, architect, and machinist; and we need hardly add, that, in many of the manufacturing arts, it has now become equally indispensable. The advance of social refinement is continually creating a demand for more artistic forms and coloring in the products of manufacturing skill, as well as for ever-successive novelties in their figure and decoration. Thus a wide field is opened for the exercise of taste, invention, and artistic ability in the preparation of patterns for textile fabrics, for glass and pottery, and articles of household furniture; and in the competition thus arising for new and tasteful devices, the prosperous pursuit of these departments of industry is often largely dependent on the extent of art-culture which can be brought to bear on what may be termed the æsthetic branch of the manufacture.

"SCHOOL OF MATHEMATICS.

"Of the more strictly scientific part of the proposed School of Industrial Science and Art, a Department of *Elementary and Applied Mathematics* has especial claims to our attention, as relating to studies of fundamental importance in nearly every branch of the constructive and manufacturing arts. The teachings of this Department, without embracing the earliest rudiments of mathematics, would require—for the first few years at least—to be adapted to a humble grade of preliminary attainment. Besides common geometry, algebra, trigonometry, and descriptive and analytical geometry, they might, perhaps, include the elements of the differential and integral calculus. They should, however, dwell most especially on the application of the several subjects; in mensuration, surveying, navigation, map-making, and perspective; in computing the proportions of machinery, the form and strength of constructions, the value of mechanical forces; and in the innumerable other problems of a mathematical nature, which the mechanic, engineer, architect, and manufacturer may be called upon to resolve.

"SCHOOL OF PHYSICS.

"Another leading Department in the School of Industrial Science would be that of *General and Applied Physics*—embracing the principles of mechanical philosophy, as relates to solids, liquids, and airs; the laws of heat, light, electricity, and magnetism; and the applications of these principles and laws, in the machinery, instruments, and processes of the manufacturing and mechanic arts. Under the latter heads, it would be the design to teach the relative properties and value of the different materials used in construction, and the principles regulating the distribution of tension and resistance among them; to illustrate the practical application of steam, heated air, water, the atmosphere, gravity, and other motive forces, together with the methods of determining their mechanical efficiency; and to explain the construction and working action of the various descriptions of machinery and engines to which these forces are applied: reference being made, throughout, to such of the machines, models, and drawings, contained in the Museum of the Institute, as might best answer the purposes of illustration.

"In this division, it should be the first object to impart a thorough knowledge of the fundamental principles of the several branches of physics, as mathematically and experimentally demonstrated; and then to conduct the more strictly practical instruction, as much as possible, under the guidance of these primary truths. The mathematical treatment of the respective topics would of necessity be limited to the simpler lines of investigation. Yet it cannot be doubted that even this elementary training in exact methods would be of great practical advantage to the inquirer, not only from the secure grasp of principles which it would confer, but from the habit of close observation and reasoning which it would enable him to apply in the practical questions of his profession.

"SCHOOL OF CHEMISTRY.

"The subject of *Applied Chemistry* would also claim an important place in the plan of instruction here proposed. In this, as in the preceding Departments of the School, the general doctrines and laws of chemical reactions should be made to precede the study of the practical and industrial branches of the subject. The former might be taught by the demonstrations of the lecture-room; the latter could not be prosecuted in a manner to be practically available without personal training in analysis and experiment, and would therefore demand the facilities of an ample and well-appointed *Laboratory*. This we should hope to see early connected with the School of Industrial Science, and so equipped with the implements of practical chemistry as not only to provide for the ordinary exercises in analysis, but for the examination of soils, manures, and organic products, and for the illustration and study of the leading processes in dyeing, tanning, metallurgy, and the numerous other arts in which chemical reactions are concerned.

"School of Geology.

"Lastly, to complete the circle of instruction essential to the plan of industrial education here contemplated, provision should be made for systematic teachings in *Physical Geology and Mining*, with so much of the general science as is important to illustrate the more practical branches of the subject. With the aid of maps, sections, and specimens, it would be the aim of this Department to teach whatever is known of the laws of succession of rock-formations, and of the various faults, flexures, and other disturbances or modifications, by which they are affected; and to point out more especially the geological structure and mineral characteristics of each of the great divisions of our own and the neighboring territories, the position and extent of the coal-fields, the belts of iron-bearing and other metalliferous rocks, and the geological relations and ranges of the various granites, sandstones, slates, soapstones, limestones, marbles, marls, clays, and other mineral aggregates, which have been found available for building or other purposes, or which may hereafter be brought into profitable use.

"In this connection, the method of conducting geological and mineral surveys would be brought under view. The student would be taught whatever relates to the opening and extension of quarries, shafts, tunnels, and drifts, and other details of mine-work, and to the winning, raising, and purification of the crude product; together with the drainage, ventilation, under-ground planning, and entire economy of the mine; while, by the systematic study of specimens, he would be instructed in the characteristic appearances and properties of the more useful building-rocks, ores, coals, and other mineral materials; and would be prepared to test and estimate their value as applied to particular uses, and to make a proper selection, where necessary, between the similar products of different quarries, deposits, or mines.

"Thus various in its practical instructions, both as regards principles and details, this Department of the School of Applied Science would not only offer facilities for professional training to those engaging in the pursuit of practical geology and mining, but, by innumerable facts and suggestions, would render most important service in agriculture, architecture, engineering, and most of the industrial arts.

"Such is an imperfect sketch of the Departments of instruction which we would consider most essential in the strictly educational branch of the Institute. In conducting them, it would be the object to provide substantial and continuous courses of teaching, such as, while imparting a knowledge of the principles, facts, and processes connected with the Arts, should cultivate the habits of observation and exact thought which are so conducive to the progress of invention and the development of intelligent history.

"In some of these Departments—as drawing, operative chemistry, and mathematics—the instructions would of necessity be chiefly conducted by *class-studies, recitations*, and *laboratory exercises*, requiring little or no aid from formal lectures; while, in others—such as physics, general chemistry, and geology—the plan of *lecture-room teaching* could be advantageously and habitually employed.

"In arranging the plan and courses of instruction, provision would be made for the two classes of persons for whose benefit they are designed—those who enter the school with the view of a progressive systematic training in applied science, and who have the preliminary knowledge, as well as time, for a continuous prosecution of its studies; and the far more numerous class, who may be expected to resort to its lecture-rooms for such useful knowledge of scientific principles as they can acquire without methodical study, and in hours not occupied by active labor.

"The former would of necessity be subjected to classification and direction in their studies, as well as examinations and other tests of acquirement in the progress and at the close of their terms. The latter, without having access to the exercises of the class-room, would be admitted to the courses of lectures on general and applied science, subject only to the conditions and restraints that are usual in public lectures generally. To neither class would we propose to offer gratuitous instruction; but we would hope that, through the prospering resources of the Institute, the entire systematic training of the School might be placed within reach of aspiring students of humble means, and that the lecture-room instructions might be made accessible to all at only an inconsiderable expense.

"In regard to the latter feature of the School, we may remark that, as the system of merely popular lecturing in its usual form would be inconsistent with the grave practical purposes which we have in view, it could not be recognized in connection with our plan. We would, however, anticipate much valuable aid from courses of lectures on subjects not directly provided for in the School, but of a nature to be conducive to the general objects of the Institute. Such would be the history of commerce, manufactures, and the mechanic arts;

biographies of eminent inventors, and other benefactors of industry; important questions in political economy and trade; the principles of architecture, painting, sculpture, and of fine art criticism, and illustrations of special inventions and discoveries in general and industrial science; and, for these additions to the educational advantages of the Institute, we might confidently rely on the assistance of the members and other friends qualified to advance its purposes in connection with industrial and general education.

"In the features of the plan here sketched, it will be apparent that the education which we seek to provide, although eminently practical in its aims, has no affinity with that instruction in mere *empirical routine* which has sometimes been vaunted as the proper education for the industrial classes. We believe, on the contrary, that the most truly practical education, even in an industrial point of view, is one founded on a thorough knowledge of scientific laws and principles, and which unites with habits of close observation and exact reasoning a large general cultivation. We believe that the highest grade of scientific culture would not be too high as a preparation for the labors of the mechanic and manufacturer; and we read in the history of social progress ample proofs that the abstract studies and researches of the philosopher are often the most beneficent sources of practical discovery and improvement.

"But such complete and comprehensive training can, in the nature of things, be accessible to only comparatively few; while the limited and special education which our plan proposes would, we hope, fall within the reach of a large number whom the scantiness of time, means, and opportunity, would exclude from the great seats of classical and scientific education in the Commonwealth.

"It will thus be seen, from the peculiar character and objects of this Department of the Institute, that it could not interfere with the interests of the established schools of learning devoted to general literary and scientific education. Aiming to supply the industrial classes with a knowledge and training of which they are specially in need, and which it would be incompatible with the purpose and organization of the universities and colleges to attempt to provide, it would, we feel assured, command the good wishes and active sympathies of the scholars and men of science who dispense the high instruction of these schools. Nor can we doubt that it would be gladly welcomed by all those who are practically occupied in the Arts, as a new source of success and enjoyment in their labors; while, by the large-minded manufacturers, merchants, mechanics, and agriculturists, who control the material fortunes of the Commonwealth, it would be heartily and liberally recognized as a needed and truly momentous addition to our means of industrial as well as of educational prosperity.

"WILLIAM B. ROGERS, *Chairman.*"

V. THE SOCIETY OF THE ASSOCIATES.

The fifth provision of the Trust Deed provides for the establishment of a Society, in connection with the Union, for the general purposes of public improvement. The Trustees announced in their first Annual Report, that as soon as the details of its organization could be arranged, the Society would be formed. With a view of making this organization as effective as possible for the public good, it has been deemed expedient to make the privileges of the Society accessible to all, and make the basis broad enough to include any systematic effort for the diffusion of knowledge or the improvement of the community. The Trustees have, therefore, adopted the following rules and regulations for the organization of the Society, a careful examination of which will render further elucidation of the plan and objects of the association unnecessary. During the present year the Trustees expect to be able to get the Society into operation, after which, by the terms of the charter and the necessities of the case, its future progress and success will depend, in the main, upon the members who may see fit to attach themselves to it.

RULES AND REGULATIONS.

Whereas the eighth section of the charter of "the Cooper Union for the advancement of Science and Art," provides that the "Trustees of the corporation hereby created, may at any time associate with themselves such persons as they shall see fit, as members of the corporation hereby created, and with such persons organize a Society with the style and title of 'the Associates of the Cooper Union, for the advancement of Science and Art,' the object and purposes of which shall be the encouragement of science, arts, manufactures and commerce; the bestowal of rewards for such productions, inventions and improvements as tend to the useful employment of the poor, the increase of trade, and the riches and honor of the country; for meritorious works in the various departments of the fine arts; for discoveries, inventions, and improvements; and generally, by lectures, papers, and discussions thereon, and other suitable means, to assist in the advancement, development, and practical application of every department of science in connection with the arts, manufactures and commerce of the country. The said Society shall consist of the said Associates, the graduates of the Institution hereby incorporated whose diplomas may include such rights and privileges, and of such other persons as, from time to time, shall be elected members thereof, always including the members of the Board of Trustees of 'the Cooper Union for the advancement of Science and Art;' and all the members of the said Society, shall, while members thereof, be members of the corporation hereby created. The said Board of Trustees shall, from time to time, prescribe the conditions and terms of membership of the said Society, which, subject to the approval of said Board of Trustees, shall make all rules and regulations for its own conduct and government, pass its own by-laws, and prescribe the duties and powers and annual dues of its members and officers, and which said Society shall elect its own officers and members, and shall, from its members, annually elect a Council, consisting of at least twenty-four members of said Society, which said Council is hereby authorized and empowered to do and perform all and every act and thing whatsoever, by it provided to be done and performed, in and by said deed. The said Society shall be inseparably connected with 'the Cooper Union for the advancement of Science and Art,' the Trustees whereof shall be entitled and are hereby permitted to receive, and in whom shall vest, all property whatsoever which shall in any way be acquired by, or at any time be granted, conveyed, assigned, devised, or bequeathed to the said Society, save only the current receipts thereof, which property shall be held by the said Trustees, but in trust, however, for the corporation hereby created; and which said property, so long as the same shall be so held in trust, may at any time be sold or disposed of by the said corporation, on the consent of the Council of the said Society, and of the Trustees of the said corporation."

And whereas it is provided in the Trust Deed, duly executed by Peter Cooper in accordance with the provisions of the charter, that it shall be the duty of the Trustees "to provide rooms, in the judgment of the Board of Trustees suitable for the offices of a Society to be organized, as provided in the act heretofore specially referred to, and to be called 'the Associates of the Cooper Union for the advancement of Science and Art,' and to furnish such Society for its general meetings on one evening of each week the great hall of the building, if the Council of the said Society shall require it so often."

And whereas it is further provided in the said Trust Deed that "the above-mentioned and described premises," (meaning thereby the Cooper Union Building,) "shall be forever subject to the visitation and examination, at all reasonable hours, of the Council of the said Society so to be organized and to be called 'the Associates of the Cooper Union for the advancement of Science and Art,' the terms and conditions of membership of which shall, from time to time, be prescribed by the Board of Trustees of the party of the second part; which said Society shall make all rules and regulations for its own conduct and government, subject, however, to the approval of the Board of Trustees of the party hereto of the second part, and shall pay to the said Board of Trustees, for the general uses, intents, and purposes of the corporation hereby created, all fees received on the initiation into said Society of the members thereof; and the said Board of Trustees shall consider such suggestions of the Council of the said Society as shall, from time to time, be communicated to them, and shall adopt such of them as, in their judgment, may be practicable and expedient, and calculated to increase the usefulness of the institution herein contemplated."

And whereas it is further provided in the said Trust Deed that "upon the happening of any vacancy in the Board of Trustees, above provided for, which is above provided to be filled by election, unless such vacancy shall be filled as herein provided within one year of the time when such vacancy shall occur, the same may be filled, at any time before it shall be actually filled by the Board of Trustees, by the said Council of the said 'Associates of the Cooper Union for the advancement of Science and Art,' by election in such manner as may be provided by the by-laws of the said Society."

Now, therefore, the Trustees of "the Cooper Union for the advancement of Science and Art" hereby associate with themselves as members of the corporation
and with the said Associates do hereby organize the Society of "the Associates of the Cooper Union for the advancement of Science and Art," and do prescribe the following conditions and terms of membership of the said Society:—

1.—Any person of good moral character, twenty-one years of age, may become an Associate on payment of the initiation fee of one dollar and one year's annual dues in advance.

2.—The Society shall be divided into Sections for the investigation and promotion of special branches of knowledge, as follows:—

The first, for Jurisprudence and the amendment of the Law.
The second, for Education.
The third, for Prevention of Pauperism and Crime, the Punishment and Reformation of Criminals.
The fourth, for Public Health.
The fifth, for Social and Political Science.
The sixth, for Agriculture.
The seventh, for Manufacturing, Engineering, and Mechanical Science.
The eighth, for Commerce.
The ninth, for Mathematical Science.
The tenth, for Chemistry and Natural Philosophy.
The eleventh, for Statistics.
The twelfth, for Natural History.
The thirteenth, for the Fine Arts.
And such other Sections as may, from time to time, be organized by the Council.

3.—The Society shall consist of Ordinary Associates, Corporate Associates, and Corresponding Associates.

4.—Any person who pays an annual subscription of dollars, or a life subscription of dollars, to the funds of the Society, shall be an Ordinary Associate.

5.—Any public body paying to the funds of the Society an annual subscription of dollars shall be a Corporate Associate.

6.—Foreign Corresponding Associates are elected by the Council, the number of such members being regulated by bylaws of the Council.

7.—All persons receiving a Diploma of the full course of instruction of the Cooper Union for the advancement of Science and Art, shall be an Associate of the Society, without the payment of any initiation fee.

8.—Foreign Corresponding Associates are exempt from payment.

9.—Every Ordinary Associate shall have the privilege of attending and voting at all the meetings of the Society; of being eligible to any of its offices, and of receiving gratuitously its Transactions and other publications, unless, in consequence of the expense of any of them, it is decided by the Council that they shall be sold, in which case the price shall be uniform to all Associates; but no member shall belong to any Section, except he be admitted as a member thereof, by a vote of the majority of those present at any regular meeting of such Section.

10.—Every Corporate Associate shall receive the Transactions and publications in the same manner as Ordinary Associates, and may nominate three representatives to attend the meetings of the Society, and such representatives shall have the privileges of Associates.

11.—Every Foreign Corresponding Associate shall have all the privileges of an Ordinary Associate, except that of eligibility to office.

12.—The annual subscription is payable, in advance, on the first day of August in each year.

13.—The Society shall have a President, Vice President, Chairman and Vice Chairman of Sections, a General Secretary, a Treasurer, a Foreign Secretary, and Secretaries of Sections, who, with the exception of the General Secretary, shall be annually elected, and hold office until the appointments of the following year are made.

14.—The Director of the Cooper Union for the advancement of Science and Art shall be the General Secretary of the Society, which shall defray such portion of his annual salary as may be agreed upon by the Trustees and the Council.

15.—The number of Vice Presidents shall be the same as the number of Sections actually organized, and one shall be selected from each Section.

16.—The Society shall be governed by a Council of the Trustees of the Cooper Union for the advancement of Science and Art consisting of the officers named in Rule 13, and of twenty-four Associates elected at the annual meeting.

17.—The annual election for officers and Council shall be held at the annual meeting in the month of in each year.

18.—Regular meetings of the Society shall be held in the great hall of the Cooper Union on the Monday of each month. Special meetings may be called by the Council whenever they may be deemed necessary; and the General Secretary on receiving a requisition signed by twenty members shall call special meetings, giving at least one week's notice thereof, and of the special business to be submitted to such meeting.

19.—The Sections shall choose their own officers, but must conform to the general by-laws adopted by the Council. The Sections shall meet as often as they may appoint, and the Trustees shall assign suitable rooms for such meetings. The Society shall repay to the Trustees the actual cost of heating, lighting, and cleaning the rooms so assigned, and the great hall when used.

20.—All the meetings of the Society and of the Sections shall be open to the public free of charge for admission.

21.—The General Secretary and Foreign Secretary are *ex officio* members of every Section and Committee. The Secretary of each Section shall be *ex officio* a member of every Committee of such Section.

22.—The Council shall conduct the general business of the Society, make by-laws for its regulation, subject to the approval of the Trustees; order and sanction the disbursement of the funds; call meetings of the Association; elect Foreign Corresponding Members; appoint Committees of their own body; provide for the visitation and examination of the Cooper Union, as required in the Charter of the Corporation, and report them to the Trustees; elect Trustees in the event contemplated in the Charter and Trust Deed; make a report of the proceedings of the Society at its annual meeting; and decide upon the publications to be made by the Society.

23.—The Council and its Committees shall be summoned by the General Secretary; the meetings and Committees of each Section shall be summoned by the Secretary of such Section.

24.—Every Committee may add to its number unless otherwise ordered at the time of its appointment.

25.—At all meetings of the Society or of the Sections, or of the Council, or of any Committee, the President or Chairman for the time being shall have a vote, and if the votes be equal he shall have the casting vote.

26.—For general meetings of the Society members, for Council meetings ten members, and Section meetings such number as the Section shall order, and for Committee meetings a majority, shall form a quorum.

27.—The funds of the Society shall be kept in bank to the credit of the Society. All sums received shall be paid into bank, and all disbursements shall be made by check, drawn by order of the Council, and signed by the Treasurer and countersigned by the General Secretary.

28.—The Treasurer shall see that proper books of account are kept; and his accounts shall be audited by two auditors, not being members of the Council, to be chosen at the annual meeting to audit the accounts for the ensuing year.

29.—The accounts of the Association shall be made up to the in each year, and after being duly audited are appended to the annual report of the Council.

30.—These rules may be altered by the Council from time to time, provided the alterations are approved by the Trustees before the same go into effect.

31.—The Council may expel any Associate for reasons satisfactory to the Council.

FINANCIAL STATEMENT.

The corporation has no debt whatever beyond the current monthly expenses, and is prohibited by the Charter and Trust Deed from incurring any liability exceeding the sum of five thousand dollars, except upon the personal responsibility of the Trustees. The question is often asked whether the regular revenues of the Institution are equal to the expenditures. By reference to the financial statement it will appear that the expenditures of the last year amounted to $30,800.71. Of this sum $2418.46 were expended for furniture; $2232.36 were expended for philosophical apparatus; and $7047.96 were expended for repairs and improvements, making a total of $11,696.72 for these three items. It is expected that $5000 annually will hereafter be sufficient for these purposes, which will reduce the annual expenditure for the various departments of the Institution now in operation to the annual sum of $24,000. The current receipts of the year were $28,103.17, of which $5109.20 were received from Peter Cooper, Esq., on account of his donation of $10,000 for furnishing the Institution. The regular receipts were therefore about $23,000, being $1000 less than the regular expenditures. The Trustees have still on hand nearly $5000 of the unexpended donation of Mr. Cooper, and they therefore consider that they are fully justified in carrying on the Institution on its present liberal scale of usefulness.

It is right to state, however, that a considerable part of the revenue is derived from the rents of the great hall of the Union in the basement of the building, and is therefore subject to considerable uncertainty. Moreover, the use of the hall for political meetings is a serious drawback upon the quiet which is essential for literary and scientific operations, and doubtless derogates, in the public estimation, from the general reputation of the Institution. The Trustees would therefore be glad to devote the hall to other and more congenial uses, if the loss of income could be compensated in any other way.

The most appropriate use of the basement would be for a great

FREE LENDING LIBRARY

for the citizens of New York. In Boston the city government has established such a library, which now contains about 100,000 volumes, and the number of volumes withdrawn daily averaged last year 508.5, making 150,020 volumes during the year. It is to be observed, however, that of the

100,000 volumes in the library, only 17,000 were ready for circulation, so that every book was taken out 9 times during the year. The greater population of New York would insure a circulation of at least five times the number of volumes daily, so that the necessity of such a library must be apparent to all. The city of Liverpool maintains at the public cost a similar library, for which a building has been recently erected by the munificence of our fellow-countryman, William Brown, M. P., at a cost of over $150,000. The free lending library in 1858 contained 20,628 volumes, and the withdrawals of books amounted for the year to 391,413 volumes, showing an annual withdrawal of each volume 19 times. Of course the books are in demand in various proportions. Macaulay's History of England circulated during the year 130 times; Life of Bonaparte, 141 times; Wellington, 126 times; Nelson, 91 times; Reid on the Steam Engine, 54 times; Herschel's Astronomy, 25 times; Chalmers's Bridgewater Treatise, 24 times; Dunovan's Chemistry, 31 times.

A very natural inquiry may be made as to the class of persons who derive benefit from this institution. The present borrowers are 7755, who are classified as follows :—

Merchants' and shopkeepers' apprentices, office lads, and school boys,	1832
Mechanics, laborers, warehousemen, and police officers,	2826
Clerks and shopmen,	1390
Teachers and scripture readers,	222
Shopkeepers and retail traders,	186
Students and professional men,	60
Business not ascertained, principally females,	1239
	7755

Of these 3395, or 43½ per cent., are under 21 years of age.

Liverpool contains less than half the population of the city of New York, and if a similar free lending library were established in this city, it is safe to assume that in consequence of the more general taste for reading, and the fact that nearly all can read, the number of readers would be three or four times as many. This is evident from the fact that in Boston, a city of much less size than Liverpool, the number of readers registered is 18,138.

From both the Liverpool and the Boston libraries, books are loaned without a deposit, the applicant merely filing a recommendation from some respectable citizen. The loss of books thus arising is quite inconsiderable, and the amount of fines for keeping the books over time is nearly or quite sufficient to repay the losses, and the trustees of the Boston library record their opinion that "the injury accruing from the loss or damage of books is trifling when weighed with the benefits resulting from their circulation."

In urging the establishment of a great free lending library, let it not be supposed that the Trustees desire to interfere with the admirable institutions already existing in this city. These institutions are mainly for special classes. The Society Library is essentially restricted to the refined and cultivated. The Astor Library is intended merely for reference. The Mercantile Library admirably supplies the wants of clerks; while the Apprentices' Library fulfils a useful purpose for the special class for which it was designed. But the great mass of our people who desire to read, or who would be elevated and refined by reading, are outside of the influence of these institutions. They all have reading-rooms attached to them, and yet the number of visitors to the Free Reading-Room of the Cooper Union exceeds them all combined. The necessity for its formation is thus demonstrated, and when it is considered how many can read books at home who can never enter the reading-room at all, the far greater necessity of the public library becomes apparent. The Cooper Union is now the recognized resort of the working classes, who feel that at length they possess in it an institution devoted especially to their use and improvement.

The establishment of a free lending library in the basement would at once attract a host of borrowers, and do more to counteract the influence of drinking shops and disreputable places of amusement than any other possible antidote which can be devised. The hall is sufficient in size for the accommodation of at least 300,000 volumes; and if greater space should be required, the additional books could be placed in the upper floor of the building, which is connected with the lower hall by a shaft, in which a steam elevator can be placed. The building is completely fire proof, so that by no possibility can any accident occur from the use of lights at night.

How, then, shall this library be established? The Trustees have no right, under the Trust Deed, to divert any portion of the revenues derived from the building to other purposes than those to which they are now applied. But they have a right to accept and administer any endowments, which may be made to special objects in harmony with the general design of the Institution, and intended for the elevation and improvement of the working classes of this city.

There are three plain methods by which the library may be established and maintained.

First. By the city of New York, in its municipal capacity, as is the case in Liverpool and Boston.

Second. By a general subscription among the citizens.

Third. By special gift of some citizen who desires to render a great service to the community in which he has lived and prospered.

It is far more desirable that the library should be established by either of the two last-named modes than by the first; but however it may be done, it will be one of the most beneficent enterprises of the day, and the Trustees will be found ready, whenever the opportunity offers, to co-operate heartily with whomsoever may be disposed to provide the requisite means.

CONCLUSION.

The Trustees record with satisfaction, as part of the history of the Institution, that it was visited during the year by His Royal Highness the Prince of Wales, and the distinguished noblemen and gentlemen who composed his suite. Great interest was manifested in the various departments of the Institution, and especially in the School of Design for Women. This visit will probably facilitate the design of the Trustees to increase the reference library by the addition of the valuable public documents which the British Government have heretofore so generously distributed to the various public institutions in this and other countries.

In conclusion, the Trustees respectfully invite all persons who take an interest in the progress of popular education to visit and examine the Institution in its several departments; and if by the explanations of this Report any shall be induced to aid in the improvement of the Institution, by advice, gifts of books, works of art, scientific objects, or by endowments for special purposes, the objects of the Trustees will be fully realized.

PETER COOPER,
WILSON G. HUNT,
DANIEL F. TIEMANN,
EDWARD COOPER,
JOHN E. PARSONS,
ABRAM S. HEWITT,
Trustees.

NEW YORK, *February* 4, 1861.

APPENDIX.

At the annual Commencement, certificates of merit were awarded to the following-named pupils in all the classes :—

CLASS OF MATHEMATICS.

Andrew Blythe.
John Hunt.
Alexander Thain.
J. H. Van Wyck.
Morris Cotter.
Gram Curtis.
Edmund H. Henderson.
Thomas F. Stevenson.
Reuben Savidge.
Robert Scott.
John T. Alwaise.
Charles H. Eberhard.
Wm. Peasley.
Wm. L. Taylor.
James O'Reilly.
Geo. I. Burnap.
Charles H. Hubbard.
John Tregaskis.
Geo. W. White.
M. P. White.
James Hunter.—21.

CLASS OF MECHANICAL PHILOSOPHY.

Henry Baldwin.
William Forbes.
Andrew M. Gilmore.
Geo. Haitzen.
Geo. H. Lambert.
Gustavus Muller.
Lawrence Van Wyck.
Frederick H. Way.
V. D. F. Zinglemann.—9.

CLASS OF CHEMISTRY.

Mary L. Spencer.
Josephine H. Shelden.
J. Anna Spencer.
Helen Miller.
Emma Miller.
Geo. Haitzen.
Thomas B. White.
Charles B. Hewitt.
Gustavus Muller.
M. L. Morgan.
Samuel McIlroy.
Hugh Heathrington.
Robert Welsh.
J. R. Dall.
C. Eberhard.
James McAvoy.
William D. Davies.
F. M. Odell.
D. Donnelly.
Moses Leroy.
James A. Brewster.
Garret E. Anderson.
William Forbes.
Henry Dusenbury.
Adam Bosch.
Wm. Palm.
Dunkin Weisse.
A. M. Gilmore.
Henry Hawkins.
Lawrence Van Wyck.
Wm. Ross.—31.

CLASS OF ARCHITECTURAL DRAWING.

Theodore F. Quille.
Geo. Allen.
Charles E. Allen.
Wm. P. Bowne.
Anthony McCauley.
Orion White.
Michael G. Gaffney.
Wm. Lawson.
John McIntyre.
Thomas Thornton.
Wm. J. Kerr.
Francis M. Odell.
Patrick Spellman.
John S. Earle.
Leroy C. Driggs.
Alfred H. Stratton.
Wm. Bergen.
Robert Torrence.
Herman Horwedel.
John J. Quinn.
S. Brittian.

Wm. Young.
Alphonse Fauchere.
David Newbecker.
James Dugan.
James M. Reybert.
Jethro Washburn.
John Weston.
Michael Sullivan.
J. L. Hamilton.
J. Curtain.
G. Alge.—32.

CLASS OF MECHANICAL DRAWING.

David Anderson.
G. N. Buckman.
John Brownworth.
L. Duvenage.
W. Faul.
Geo. C. Gill.
J. M. Gaffney.
D. A. Greene.
C. Hagen.
John H. Hunt.
Frederick Joy.
Thomas W. Miller.
John O'Donnell.
Reuben H. Plass.
Alfred E. Parks.
Robert Potts.
Albert Poritz.
Wm. C. Smith.
Thomas F. Stevenson.
J. L. Stuart.
Malcolm Stewart.
Theodore Shorteau.
John Tregaskis.
Peter Valdes.
G. P. Hunt.
E. H. Henderson.
Lewis Horwedel.
W. J. Hare.
P. M. Leprohon.
C. Miller.
J. Fluhr.
Cyrus Griffith.
A. A. Jacqua.
James P. Taylor.
R. McKenna.
Wm. O. Smith.
Henry Sargood.
Albert Jackson.
R. B. McIlvain.
Andrew Harris.
James S. Anderson.
Wm. Nelson,
John K. Kreig.
Charles Logan.
Julius Hintze.
Edward Thompson.
P. Burchell.
S. Major.
John Cumming.
A. Adamson.
R. Hardnett.
John Logan.
John Peters.—53.

CLASS OF FREE-HAND DRAWING.

Wm. Klauser.
W. V. Shraw.
Geo. Carpenter.
E. B. Hough.
Thomas Murphy.
Henry A. Pratt.
L. Horwedel.
L. Hoeltzel.
F. B. Dailey.
John T. Kelley.
A. Williams.
O. Wassweiler.
Frederick Siebert.
Adolph Yorns.
A. Hinley.
John Muir.
Severn Kress.
Robert Scott.
Thomas Russell.
Wm. E. Brill.
Charles F. Dscheuden.
Philip Dietz.
Henry Oehl.
Emil Stern.
T. Oscanyan.
Robert Carr.
Jas. A. McAvoy.
James M. Fenton.
Joseph O. Pearson.
G. N. Buckman.
F. M. Kelly.
C. Citti.
Robert Sneider.
Wm. Jones.
Paul Gerhard.
Thomas Kelly.
C. Griffiths.
John Keen.
Henry Lewenberg.
H. C. Burton.
James Jackson.
T. F. Laycocks.
Wm. P. Dally.
Julius Hames.
Deane Maxwell.
Herman Horwedel.
Wm. Griffin.
Michael Sullivan.
John Wood.
Ernest Feidrich.
John McIntyre.
Joseph P. J. Callaghan.
John McDonnell.
Joseph M. Zaldiver.
Wm. Urban.
F. Aguexo.—56.

SCHOOL OF DESIGN.

Hannah Eudora Keep.
Corinna B. Nye.
Eliza A. Peckham.
Almira B. Macy.
Amalie Van Horn.
Caroline G. Ward.
Jesse Curtis.
Mary F. Kidder.
Frances Ketchum.
Helen M. Phillips.
Cornelia Hull.
Frances M. Weeks.
Addie Van Dyke.
Amelia Tyler.
Sophie Neely.
Flora Neely.
Angelina C. Meyer.
Mary Jane Boyd.
Laura Neely.
Mary Eliza Gedney.
Elizabeth R. Mave.

Elizabeth C. Field.
Gulielma Field.
Annie Tooker.
Emily Telfer.
Cornelia S. Post.
Charlotte B. Cogswell.
Mary Jane Parkinson.
S. C. Davenport.
Mary H. Greene.
Sarah B. Denroche.
Cornelia A. Updike.
M. Isabella Amos.
Almira C. Fitz.
Alice Donlevy.
Sarah Townsend.
Elizabeth C. Fitz.
Annie McGay.
Mary Isabella Creamer.
Kate A. Parker.
Harriet J. Howells.
Lucia Green.
Josephine T. Giles.
Georgianna Chatterton.
Jane Hamilton.
Elizabeth P. Pooley.
Elizabeth E. Evans.
Eugenia F. Cobb.
Lucy M. Bronson.
Fanny Heartt.
Elizabeth S. Kimball.
Mrs. H. Caloosdian.
Narrie Mack.
Martha S. Day.
Julia Abbott.
Ella Quimby.
Annie Van Tine.
Louise Smith.
Cornelia L. Westerlo.
Mary Theresa Gorsuch.
Mary Kyle Dallas.
Mrs. E. L. Hill.
Fidelia Bridges.
Jennie Dayton.
Augusta Larned.
Georgianna A. M. Davis.
Caroline D. Sterling.—67.

CLASS OF VOCAL MUSIC.

Mrs. G. Boardman.
" E. A. Ayling.
Miss E. Simmons.
" S. Croft.
" M. E. Hughes.
" S. A. Ketchum.
" H. A. Clare.
" M. E. Grady.
" S. McVey.
" Annie McVey.
" J. M. McVey.
" M. Chandler.
" S. Knight.
" M. A. Compton.
" L. A. Dore.
" —— Gildersleeve.
" J. Curtis.
Mrs. E. L. Hendrick.
Miss H. Dutch.
" M. V. Tucker.
" M. F. Wade.
" S. Wood.
" H. Bebe.
" C. Knowlton.
" E. J. Clare.
" G. Curtis.
" M. A. McIntyre.
" S. Lazarus.
" A. Lazarus.
" E. Miller.
" H. Miller.
Miss S. E. Douglass.
" M. A. Thornton.
" J. F. Ketcham.
" M. Neale.
" S. L. Dore.
" J. A. Brown.
Mr. Ed. B. Giles.
" M. J. Clark.
" S. M. Pike.
" S. M. Porter.
" J. P. Denny.
" M. J. Kain.
" D. Anderson.
" H. R. Rodgers.
" C. F. Spaulding.
" S. D. Hatch.
" W. D. Warren.
" J. P. Goff.
" W. McPherson.
" F. M. Watkins.
" R. Pindar.
" F. A. Mason.
" G. F. Dodd.
" E. J. Browne.
" W. S. Ludlam.
" J. P. Curry.
" H. W. Dodge.
" S. L. Fogg.
" J. J. Long.
" R. McPherson.
" W. Curry.
Mr. J. S. Anderson.
" Geo. Mitthauer.
" A. C. Cheeney.
" —— Atwater.
" T. H. Clare.
" G. Stuart.
" R. B. McIlvaine.
" J. Boorer.
" E. Brien.
" B. W. De Munn.
" B. F. Gale.
" L. T. Burbank.
" J. A. Adams.
" W. J. Curry.
" S. P. Simpson.
" C. Doscher.
" W. A. Miles.
" E. P. Wheeler.
" F. H. Cowperthwaite.
" G. E. Anderson.
" J. H. Reed.
" W. R. Roome.
" J. G. McCleary.
" J. R. Greaves.
" J. Dorriner.
" G. W. Miller.
" Alfred Bredt.
" T. Woodword.
" E. R. Atwater.—91.

Total.... ....363.